

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HELMUT DERLETH, DENIZ ADEM
AND MICHEL STREBELLE

Appeal No. 1999-0663
Application 08/624,047

HEARD: July 10, 2002

Before KIMLIN, OWENS and JEFFREY SMITH, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal is from the final rejection of claims 11, 14, 16-24, 26 and 27, and refusal to allow claim 25 as amended after final rejection. Claims 1, 2, 4-10, 12 and 13, which are all of the other claims remaining in the application, have been indicated allowable by the examiner.

THE INVENTION

The appellants claim a catalyst composition and a process for using it for oxychlorination of ethylene to

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1,2-dichloroethane. Claim 11, directed toward the catalyst composition, is illustrative:

11. A catalytic composition consisting of copper chloride, magnesium chloride and potassium chloride deposited on an alumina, containing from 30 to 90 g of copper, from 10 to 30 g of magnesium and from 0.1 to 10 g of potassium, expressed as metal, per kilo of catalytic composition, and in which the K/Cu atomic ratio is from 0.025 to 0.25, the K/Mg atomic ratio is from 0.01 to 0.8, and the Mg/Cu atomic ratio is from 0.5 to 1.5.

THE REFERENCE

Scott	0 375 202	Jun. 27, 1990
(European patent application)		

THE REJECTION

Claims 11, 14 and 16-27 stand rejected under 35 U.S.C. § 103 as being unpatentable over Scott.

OPINION

We affirm the aforementioned rejection. Under the provisions of 37 CFR § 1.196(b), we enter a new ground of rejection of claims 1, 2, 4-10, 12 and 13.

The appellants state that the claims do not stand or fall together (brief, page 6). The appellants, however, merely point out differences in the scope of the claims (brief, pages 6-7), and this is not an argument as to why the claims are separately patentable. Hence, we limit our discussion to one claim, i.e., claim 11. See *In re Ochiai*, 71 F.3d 1565, 1566 n.2, 37 USPQ2d

1127, 1129 n.2 (Fed. Cir. 1995); 37 CFR § 1.192(c)(7)(1997).

Scott discloses a catalyst composition which consists essentially of a mixture of copper chloride, magnesium chloride and potassium chloride, on a support (abstract). The preferred support is particulate alumina (page 3, lines 25-28). Like the appellants' catalyst (specification, page 2, lines 31-32), Scott's catalyst is useful for oxychlorination of ethylene to 1,2-dichloroethane (abstract). A comparison of Scott's preferred amounts of copper, magnesium and potassium, per kilo of catalytic composition (page 2, lines 47-49), versus those in the appellants' claim 11, is as follows:

	Scott	Appellants
Cu	30-90	30-90
Mg	2-30	10-30
K	2-30	0.1-10

A comparison of Scott's preferred K/Cu, K/Mg and Mg/Cu atomic ratios (page 2, lines 50-51) versus those in the appellants' claim 11 is as follows:

	Scott	Appellants
K/Cu	0.1-1	0.025-0.25
K/Mg	0.1-10	0.01-0.8
Mg/Cu	0.1-1	0.5-1.5

The overlap between the catalysts of the appellants and Scott as to each metal and atomic ratio would have rendered the

appellants' claimed catalyst *prima facie* obvious to one of ordinary skill in the art over Scott. See *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

The appellants argue that Scott does not provide a written description of the claimed invention (reply brief, page 2). This argument is not relevant because it is directed toward anticipation whereas the ground of the rejection is obviousness.

The appellants argue that Scott encompasses the use of equal ratios of K to Mg, whereas the appellants' claims do not include an equal ratio of these components (reply brief, page 2). Scott, however, would have fairly suggested, to one of ordinary skill in the art, the overlapping portion of the K/Mg ratios of the appellants and Scott.

The appellants argue that Scott merely substituted potassium for sodium in a previously disclosed catalyst (reply brief, pages 2-3). Scott refers to prior art catalysts which contain copper chloride, magnesium chloride and sodium and/or lithium chloride (page 2, lines 20-29). This disclosure is not pertinent to the issue of whether Scott's ranges which overlap those of the appellants would have rendered the appellants' claimed catalyst *prima facie* obvious to one of ordinary skill in the art.

The appellants argue that soiling, i.e. fouling, of heat

exchanger tubes in a fluidized bed wherein ethylene oxychlorination is carried out is avoided only by selecting the appellants' recited K/Cu and K/Mg ratios and keeping the absolute concentration of K low (brief, page 8; specification, page 3, lines 9-21). For a *prima facie* case of obviousness to be established, however, the prior art need not be directed toward solving the problem addressed by the appellants. See *In re Kemps*, 97 F.3d 1427, 1430, 40 USPQ2d 1309, 1311 (Fed. Cir. 1996); *In re Beattie*, 974 F.2d 1309, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992); *In re Dillon*, 919 F.2d 688, 693, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (*en banc*), *cert. denied*, 500 U.S. 904 (1991); *In re Lintner*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). It would have been *prima facie* obvious to one of ordinary skill in the art to carry out Scott's ethylene oxychlorination process using the entire ranges of components disclosed by Scott, including the portions of these ranges which overlap those of the appellants.

The appellants argue that soiling must have occurred in Scott's examples because otherwise Scott would have disclosed the lack of soiling (brief, page 8). This is mere speculation. It would be just as reasonable to conclude that because Scott did not disclose soiling, there was none.

The appellants argue that the data in appendix III of their brief, which are taken from table 1 of the specification and from the Rule 132 declaration by Strebelle filed with the brief as appendix II, show the unexpected result of no soiling (brief, pages 8-10). For the following reasons, these data are not effective for overcoming the *prima facie* case of obviousness.

First, the appellants' showing of unexpected results does not provide a comparison of the claimed invention with the closest prior art. See *In re Baxter Travenol Labs.*, 952 F.2d 388, 392, 21 USPQ2d 1281, 1285 (Fed. Cir. 1991); *In re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984). In Scott's example 5, which is the closest prior art, the amounts of Cu and K and the K/Cu ratio are within the appellants' ranges. The appellants, however, do not provide any soiling data for this example. They merely presume that because Scott is silent as to soiling, there must have been soiling.

Second, the relied-upon evidence is not commensurate in scope with the claims. See *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 778 (Fed. Cir. 1983); *In re Clemens*, 622 F.2d 1029, 1035, 206 USPQ 289, 296 (CCPA 1980). A comparison of the ranges in the tests of the appellants' composition versus the ranges recited in the appellants' claim 11 is as follows:

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	Tested ranges	Ranges in claim 11
K/Cu	0.035-0.234	0.025-0.25
K/Mg	0.004-0.307	0.01-0.8
Mg/Cu	0.75-0.95	0.5-1.5
Cu	44-60	30-90
Mg	17-18	10-30
K	1.3-8.5	0.1-10

We find in the evidence of record no reasonable basis for concluding that the values throughout the ranges recited in the appellants' claim 11 would produce results in the same manner as values within the more narrow ranges tested. *See In re Lindner*, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972); *In re Susi*, 440 F.2d 442, 445-46, 169 USPQ 423, 426 (CCPA 1971).

For the above reasons we conclude, based upon the preponderance of the evidence, that the appellants' claimed invention would have been obvious to one of ordinary skill in the art within the meaning of 35 U.S.C. § 103.

New ground of rejection

Under the provisions of 37 CFR § 1.196(b) we enter the following new grounds of rejection.

The claims are rejected under 35 U.S.C. § 103 as follows: claims 1, 2, 4-10 and 12 as obvious over Scott, and claim 13 as obvious over Scott in view of the appellants' admitted prior art.

Claim 1: Scott discloses a catalytic composition consisting

essentially of copper chloride, magnesium chloride and potassium chloride on a support, the preferred support being particulate alumina (abstract; page 3, line 25). Like the appellants' catalyst (specification, page 2, lines 31-32), Scott's catalyst is useful for oxychlorination of ethylene to 1,2-dichloroethane (abstract). A comparison of Scott's preferred amounts of copper, magnesium and potassium, per kilo of catalytic composition (page 2, lines 47-49), versus those in the appellants' claim 1, is as follows:

	Scott	Appellants
Cu	30-90	30-90
Mg	2-30	10-30
K	2-30	0.1-10

A comparison of Scott's preferred Cu:Mg:K atomic ratio (page 2, lines 50-51) versus that in the appellants' claim 1 is as follows:

	Scott	Appellants
Cu:Mg:K	1.0 : 0.1-1.0 : 0.1-1.0	1.0 : 0.75-0.8 : 0.035-0.23

The overlap between the catalysts of the appellants and Scott as to each metal and atomic ratio would have rendered the appellants' claimed catalyst *prima facie* obvious to one of ordinary skill in the art over Scott. See *Malagari*, 499 F.2d at 1303, 182 USPQ at 553.

Claim 2: A comparison of Scott's preferred amounts of copper, magnesium and potassium, per kilo of catalytic composition (page 2, lines 47-49), versus those in the appellants' claim 2, is as follows:

	Scott	Appellants
Cu	30-90	40-80
Mg	2-30	12-25
K	2-30	0.5-9

This overlap would have rendered the appellants' claimed catalyst *prima facie* obvious to one of ordinary skill in the art over Scott. See *Malagari*, 499 F.2d at 1303, 182 USPQ at 553.

Claims 4 and 5: A comparison of Scott's preferred K/Cu and K/Mg atomic ratios (page 2, lines 50-51) versus those in the appellants' claims 4 (K/Cu) and 5 (K/Mg) is as follows:

	Scott	Appellants
K/Cu	0.1-1	0.025-0.25
K/Mg	0.1-10	0.01-0.8

These overlaps would have rendered the appellants' claimed catalyst *prima facie* obvious to one of ordinary skill in the art over Scott. See *Malagari*, 499 F.2d at 1303, 182 USPQ at 553.

Claim 6: A comparison of Scott's preferred Cu:Mg:K atomic ratio (page 2, lines 50-51) versus that in the appellants' claim 6 is as follows:

Scott

Appellants

Cu:Mg:K 1.0 : 0.1-1.0 : 0.1-1.0 1.0 : 0.5-1.0 : 0.025-0.25

These overlaps would have rendered the appellants' claimed catalyst *prima facie* obvious to one of ordinary skill in the art over Scott. See *Malagari*, 499 F.2d at 1303, 182 USPQ at 553.

Claim 7: Scott's more preferred alumina specific surface area is 75-200 m²/g, which is within the range recited in the appellants' claim 7.

Claims 8-10: Scott discloses using the catalyst for oxychlorination of ethylene to 1,2-dichloroethane by reaction with hydrogen chloride in the presence of molecular oxygen or an oxygen-containing gas mixture such as air, preferably in a fluidized bed (page 3, lines 43-48).

Claim 12: Scott discloses a catalytic composition consisting essentially of copper chloride, magnesium chloride and potassium chloride on a support, the preferred support being particulate alumina (abstract; page 3, line 25). Like the appellants' catalyst (specification, page 2, lines 31-32), Scott's catalyst is useful for oxychlorination of ethylene to 1,2-dichloroethane (abstract). A comparison of Scott's preferred amounts of copper, magnesium and potassium, per kilo of catalytic composition (page 2, lines 47-49), versus those in the appellants' claim 12,

is as follows:

	Scott	Appellants
Cu	30-90	30-90
Mg	2-30	10-30
K	2-30	0.1-10

A comparison of Scott's preferred Cu:Mg:K atomic ratio (page 2, lines 50-51) versus that in the appellants' claim 12 is as follows:

	Scott	Appellants
Cu:Mg:K	1.0 : 0.1-1.0 : 0.1-1.0	1.0 : 0.75-0.8 : 0.035-0.23

The overlap between the catalysts of the appellants and Scott as to each metal and atomic ratio would have rendered the appellants' claimed catalyst *prima facie* obvious to one of ordinary skill in the art over Scott. See *Malagari*, 499 F.2d at 1303, 182 USPQ at 553. Scott's more preferred alumina specific surface area is 75-200 m²/g, which is within the range recited in the appellants' claim 12.

Claim 13: Scott discloses using the catalyst for oxychlorination of ethylene to 1,2-dichloroethane by reaction with hydrogen chloride in the presence of molecular oxygen or an oxygen-containing gas mixture such as air, preferably in a fluidized bed (page 3, lines 43-48). Scott does not disclose that the fluidized bed contains heat exchanger tubes. However,

the appellants acknowledge that it was known in the art to use a copper chloride/magnesium chloride/alkali metal chloride catalyst composition, such as that disclosed by Scott, for oxychlorination of ethylene in a fluidized bed containing heat exchanger tubes (specification, page 2, lines 2-24). Scott does not disclose that any soiling material is deposited on heat exchanger tubes within the fluidized bed.

For the above reasons, the composition recited in the appellants' claims 1, 2, 4-10 and 12, and the process recited in the appellants' claim 13, would have been *prima facie* obvious to one of ordinary skill in the art. The evidence relied upon by the appellants (brief, appendix III) is not effective for overcoming the *prima facie* case of obviousness for the reasons given above regarding the rejection of claims 11, 14 and 16-27.

DECISION

The rejection of claims 11, 14 and 16-27 under 35 U.S.C. § 103 over Scott is affirmed. Under the provisions of 37 CFR § 1.196(b), a new ground of rejection of claims 1, 2, 4-10, 12 and 13 has been entered.

In addition to affirming the examiner's rejection of one or more claims, this decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b), by final rule notice, 62 Fed. Reg.

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53, 131, 53, 197 (Oct. 10, 1997), 1203 Off. Gaz. Pat. & Trademark Office 63, 122 (Oct. 21, 1997)). 37 CFR § 1.196(b) provides, "A new ground of rejection shall not be considered final for purposes of judicial review."

Regarding any affirmed rejection, 37 CFR § 1.197(b) provides:

(b) Appellants may file a single request for rehearing within two months from the date of the original decision ...

37 CFR § 1.196(b) also provides that the appellants, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (37 CFR § 1.197(c)) as to the rejected claims:

(1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner....

(2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record....

Should the appellants elect to prosecute further before the Primary Examiner pursuant to 37 CFR § 1.196(b)(1), in order to preserve the right to seek review under 35 U.S.C. §§ 141 or 145 with respect to the affirmed rejection, the effective date of the

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affirmance is deferred until conclusion of the prosecution before the examiner unless, as a mere incident to the limited prosecution, the affirmed rejection is overcome.

If the appellants elect prosecution before the examiner and this does not result in allowance of the application, abandonment or a second appeal, this case should be returned to the Board of Patent Appeals and Interferences for final action on the affirmed rejection, including any timely request for rehearing thereof.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED, 37 CFR § 1.196(b)

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
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TERRY J. OWENS)	
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